The Forge: A River in Distress

Forge River

Draft Management Strategies

A project of the

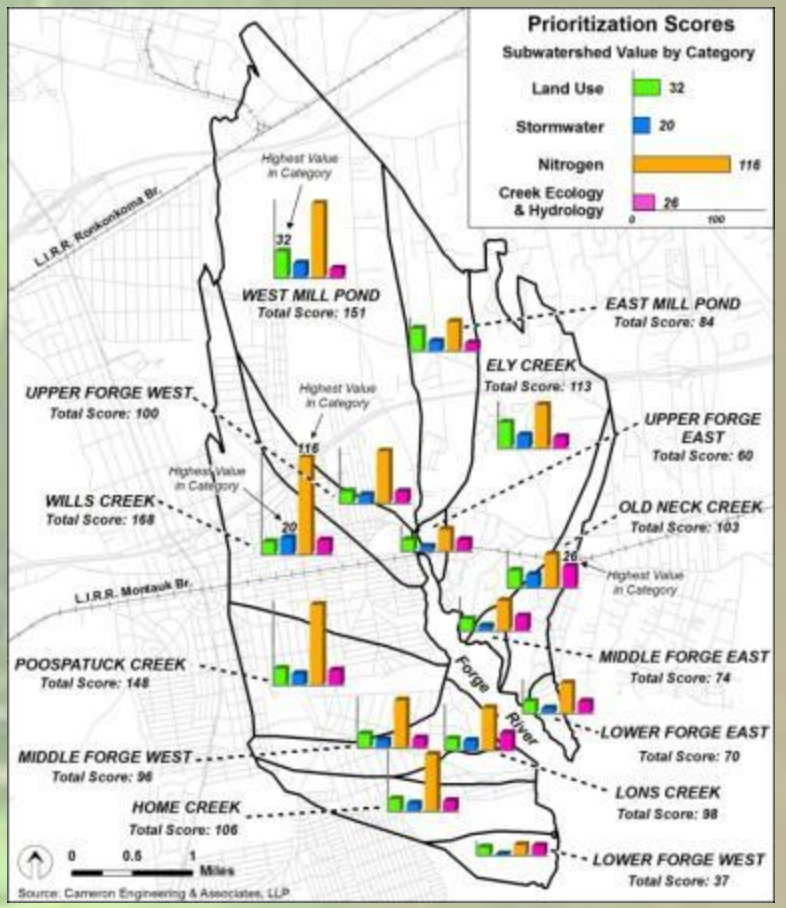
Town of Brookhaven

Presented by

Cameron Engineering & Associates, LLP

October 27, 2011

This presentation was prepared with funding provided by the New York State Department of State Division of Coastal Resources under Title 11 of the Environmental Protection Fund.

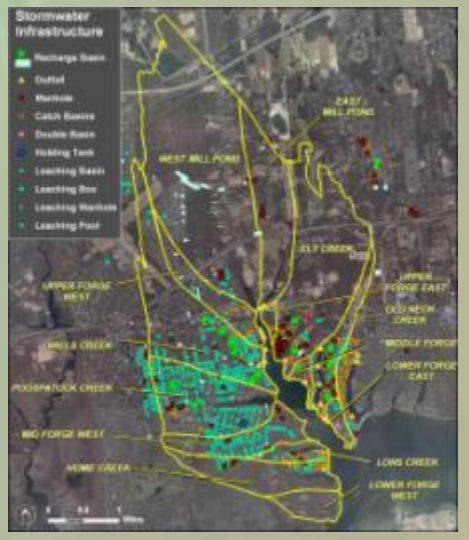


Subwatershed Prioritization

Prioritization Categories

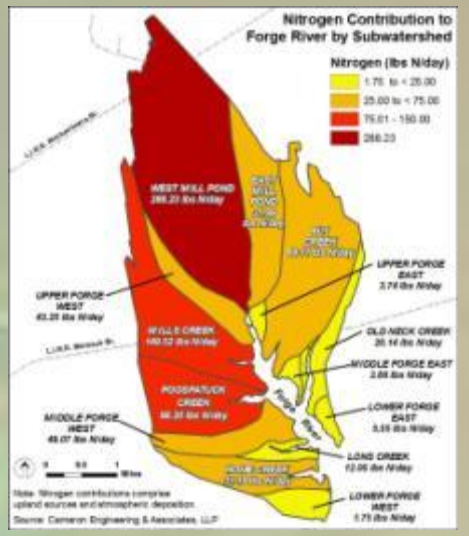
- Land use / land cover
- Stormwater
- Nitrogen
- Creek ecology / hydrology

Land Cover



Stormwater Infrastructure

Habitat & Impairments

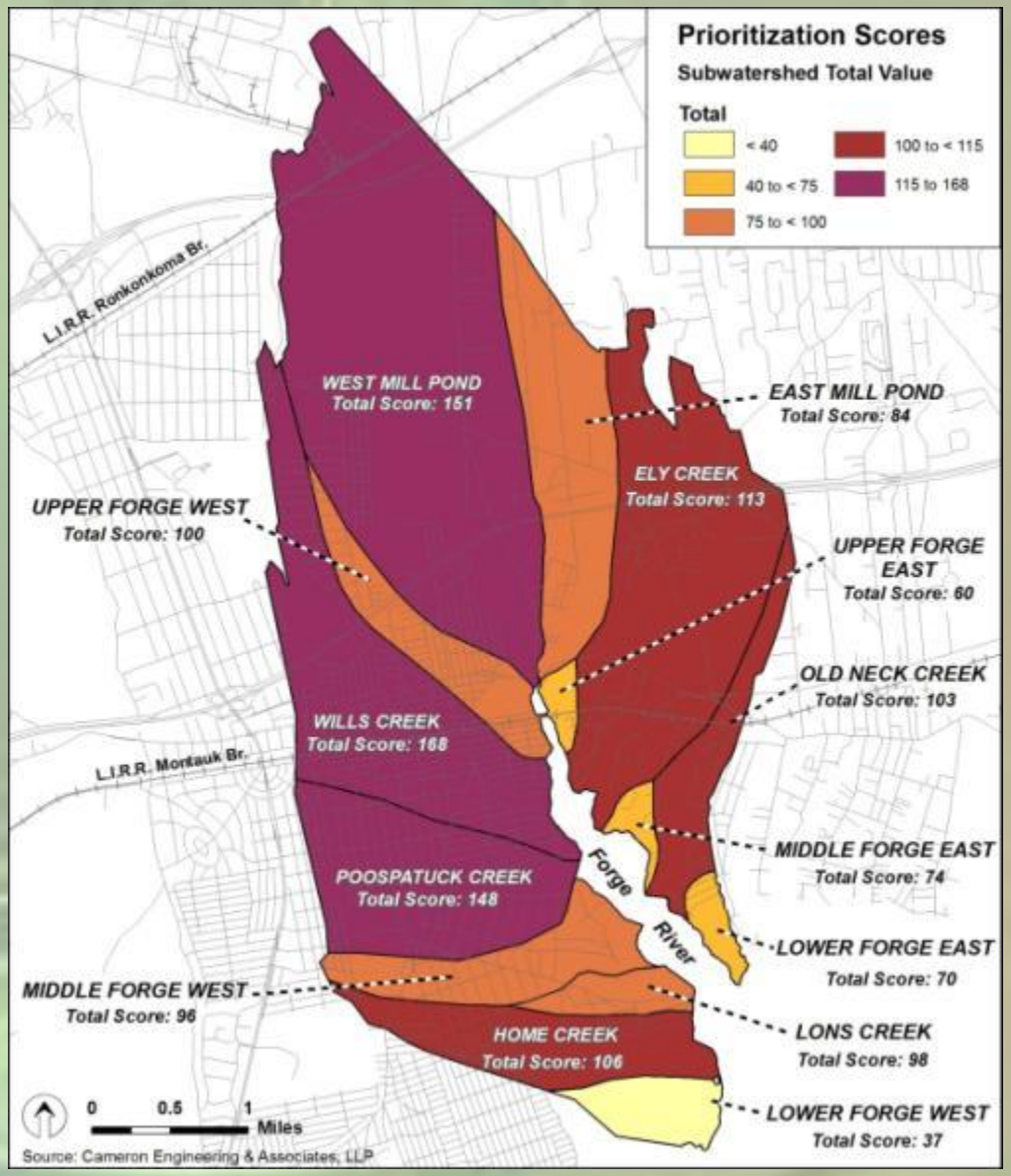


Upland Nitrogen Contribution

Subwatershed Prioritization

Prioritization Scores

Subwatershed	Value
Wills Creek	168
West Mill Pond	151
Poospatuck Creek	148
Ely Creek	113
Home Creek	106
Old Neck Creek	103
Upper Forge West	100
Lons Creek	98
Middle Forge West	96
East Mill Pond	84
Middle Forge East	74
Lower Forge East	70
Upper Forge East	60
Lower Forge West	39



Management Strategies – Short Term

Land Use Management Strategies

S1. Establish Forge River Protection Overlay District (FRPOD) for watershed

S5. Identify properties for acquisition or purchase of development rights

S7. Acquire and remediate duck farms and consider for dredge material dewatering

Management Strategies – Short Term

Stormwater Management Strategies

S9. Replace direct discharge with vegetated swales, rain gardens etc.

Swale with Bioretention

Modular Wetland (Stormtreat)

On-Site Storage System (CULTEC)

Management Strategies – Short Term

Nitrogen Reduction Strategies

S12. Restrict nitrogen fertilizer applications to the month of April for all land uses except agriculture.

S14. Require all OWTS to meet County requirements on sale of property. Low interest loan from FRPOD Fund

-Replace cesspools with septic systems; provide leaching fields for shallow systems or replace with advanced systems.

On-Site Wastewater Treatment Systems

Management Strategies – Short Term

Water Quality Improvements and Habitat Restoration

S20. Improve riparian buffers (can be funded through FRPOD low interest loan).

Note: Property owners are currently required to have minimum of 10-foot buffer in Town wetland areas.

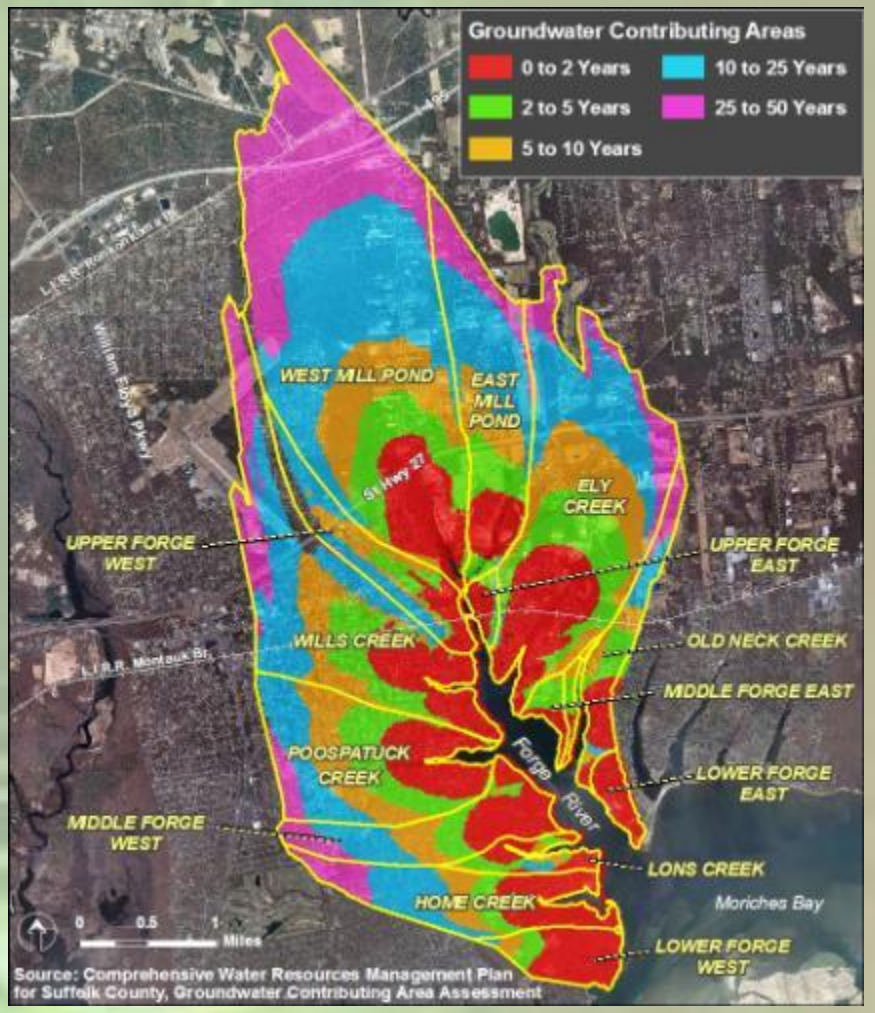
Wetland Restoration –
Mill Pond, Port Washington, NY

Management Strategies – Short Term

Research & Data Collection

S25. Determine groundwater nitrogen types, vertical and horizontal concentrations, and travel time

- Install monitoring wells parallel to flow in priority subwatersheds

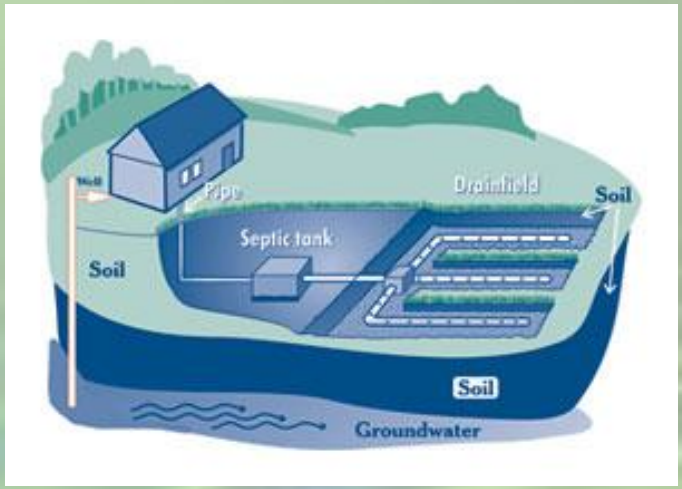


Groundwater Contributing Areas

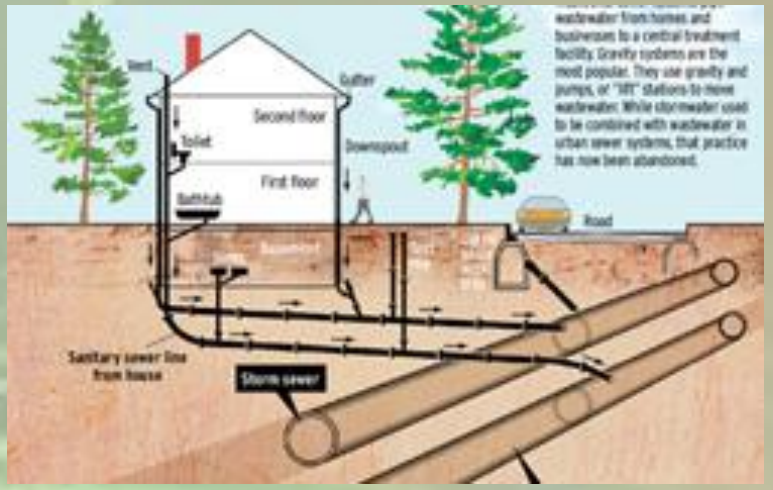
Management Strategies – Short Term

Training, Education, Stewardship

S28. Develop information for property owners for implementation of Forge River management strategies



Septic Tank with Drainfield

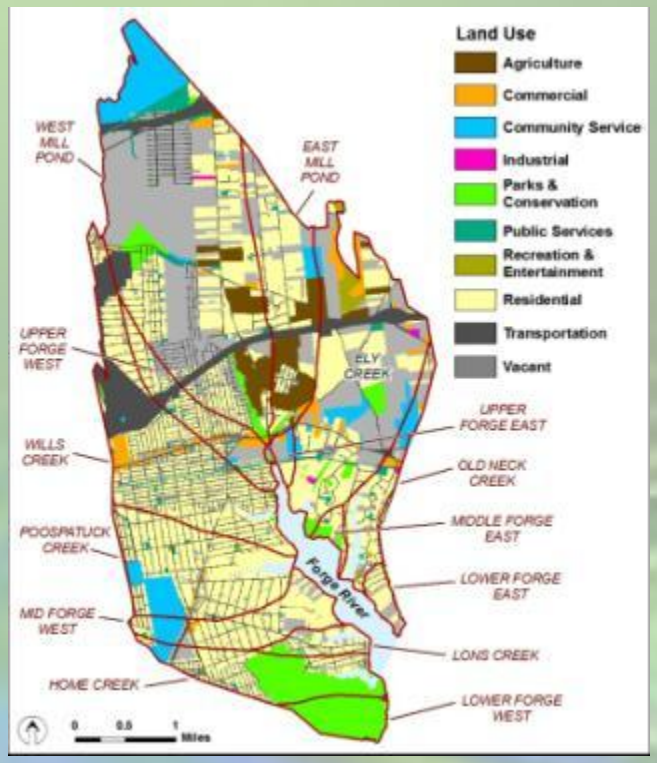


Sewer Connections

Management Strategies – Mid Term

Land Use Management Strategies

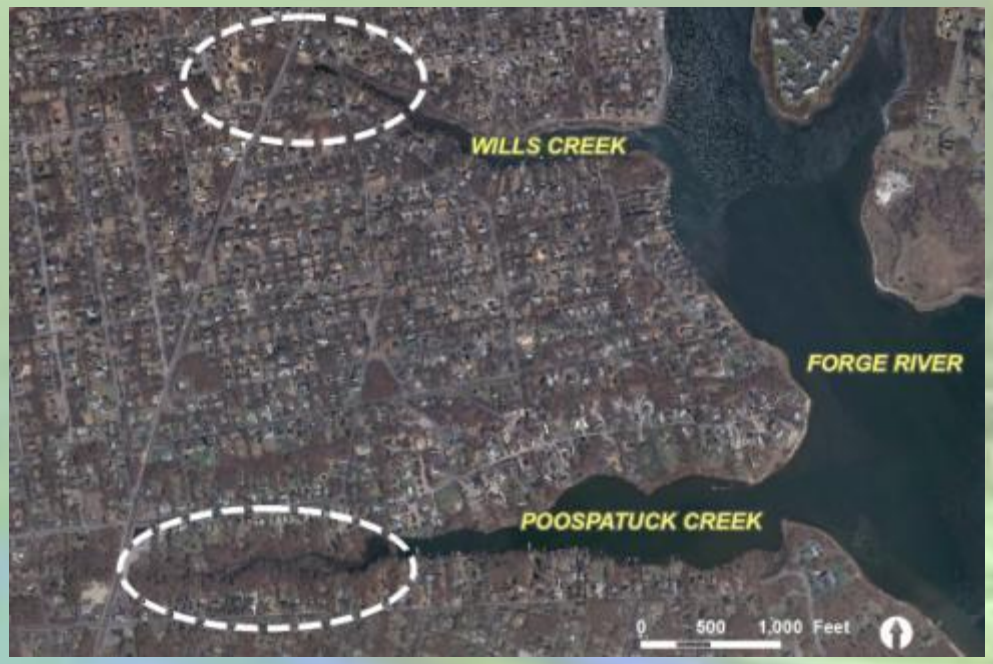
M2. Purchase development rights for farms in watershed. Allow greenhouse farming with lot coverage limits.



Management Strategies – Mid Term

Stormwater Management Strategies

M6. Provide treatment for runoff into Mill Ponds from Montauk Highway and into FR south of highway



Creek Heads – Wills and Poospatuck

Mill Ponds & Vicinity

Management Strategies – Mid Term

Nitrogen Reduction Strategies

M10. Impose stricter nitrogen effluent limits on new development based on results of TMDL.

Management Strategies – Mid Term

Water Quality Improvements & Habitat Restoration

M11-M14. Dredge to improve circulation

M11. Dredge sills at mouths of creeks and accumulation at mouth of Forge River.

M12. Remove deposits downstream of Mill Pond discharges including *Phragmites*

M13. Dredge in vicinity of LIRR trestle to improve flushing of waterbody north of trestle.

M14. Deepen Ely Creek to improve tidal circulation and reduce *Phragmites* growth.

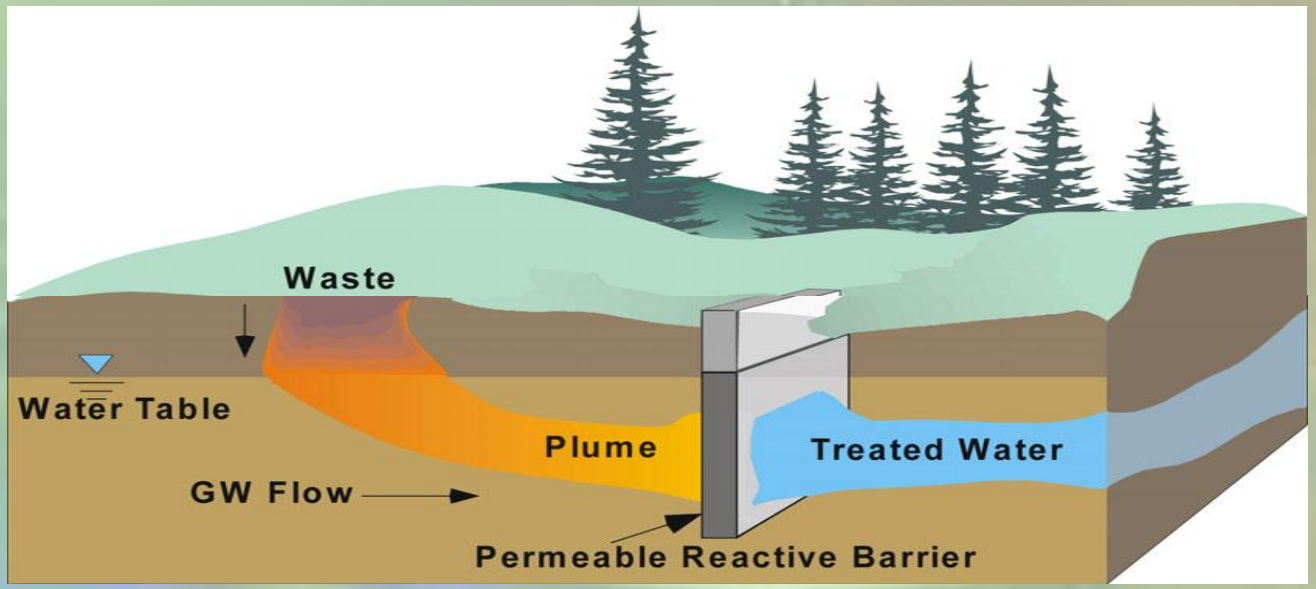
Potential Locations for Circulation Improvements

Management Strategies – Mid Term

Research and Data Collection

M18. Test permeable reactive barrier (PRB) pilot system to remove nitrogen from groundwater in priority subwatershed (highest groundwater nitrogen) preferably in riparian conservation easement

- Install demo PRB upgradient of surface water to denitrify groundwater prior to release
- Measure nitrogen up and down gradient of PRB between residence and Forge River



Management Strategies – Long Term

Land Use Management Strategies

L1. Restore duck farm properties and incorporate recommended best uses for the properties

Jurgelewicz Duck Farm

Management Strategies – Long Term

Nitrogen Reduction Strategies

L4. Improve operation of private sewage treatment plants (STPs)

- Upgrade private STPs for additional nitrogen removal or connect to future regional STP
- Affected STPs are:
  1. The Villas at Pine Hills
  2. Pine Hills South
  3. Waterways at Bay Pointe

Private STPs in the Forge River Watershed

Management Strategies – Long Term

Nitrogen Reduction Strategies

L5–L8. Sewer entire FRPOD - utilize one of several options:

L5. Conventional collection system & treatment plant ($7,500/parcel/yr)[1] OR

L6. Advanced on-site systems for parcels; avoids collection system cost, but requires regular maintenance OR

Conventional collection system and STP for WQMD	Forge River Potential Sewering Boundary	Mastic-Shirley Alternative #1 Boundary
No. of Parcels	9,000	8,517
Length of Roads (miles)	108	107
No. of Acres	3,220	3,660
Annual Cost	$67.5 million[2]	$64.3 million[1]

Source 1: Suffolk County Department of Public Works
Source 2: Derived from Source 1.

Sewering Area Boundary for Option L7

Management Strategies – Long Term

Nitrogen Reduction Strategies

L5–L8. Sewer entire FRPOD - utilize one of several options:

L7. Collect septic system effluent from all FRPOD parcels, treat at centralized community STP OR

L8. Incorporate adjacent areas (Mastic Shirley and Center Moriches) to reduce per parcel cost and expand environmental benefits

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Sewering Area Boundary for Option L7

Management Strategies – Long Term

Water Quality Improvements and Habitat Restoration

L12. Conduct maintenance dredging of Moriches Inlet to help improve flushing of Moriches Bay and the Forge River

THANK YOU
Questions?